

NOTICE TO BIDDERS

Notice is hereby given that sealed bids will be received by the Board of County Commissioners of Brookings County, South Dakota, 520 3rd St. Suite 210, until 10:00 A.M. on the 13th Day of May 2014, at which time all bids will be publicly opened, read, and considered by the Brookings County Board of Commissioners. Bid will be for the following item:

1. Dump Body, Hoist, Hydraulics, Truck Portion Plow Hitch and installation, Directional Plow, Mid-mount 10' Wing, Assist Axle, Pup Pull Plate, and Sand Spreader.

ALL BIDS MUST BE SEALED AND MARKED: "Dump Body Hoist, Hoist, Hydraulics, Truck Portion Plow Hitch, and/or Options #1-5."

By virtue of statutory authority, a resident bidder is allowed a preference as against the bid of any bidder from any other state enforcing or having preference for resident bidders, equal to such preference.

Bid bond may be in the form of a certified check, cashier's check or bank draft. The bid bond is to be in an amount equal to 5% or the amount and the check is to be certified and/or issued by either a State or National Bank and made payable to Brookings County. In lieu of a bid check the bidder may submit a surety bond for 10% of the amount bid. The surety is to be payable to Brookings County as a guarantee that such bidders will enter into a contract.

The County Commissioners reserve the right to accept or reject any or all bids, or to accept any bids which it deems to be in the best interest of the County.

Specifications are available at the office of the County Highway Superintendent or may be obtained at www.brookingscountysd.gov or by calling 605.696-8270.

ANY DEVIATION FROM THE PROVIDED SPECIFICATIONS MUST BE NOTED IN WRITING.

Dated at Brookings, South Dakota this 28th day of April, 2014.
F.O.B. Brookings, South Dakota


County Finance Officer

BROOKINGS COUNTY HIGHWAY DEPARTMENT

BID FORM

Dump Body, Dump Body Hoist, Hydraulics, Truck portion Plow Hitch and Installation

With Options: Directional Plow, Mid-mount 10' Wing, Assist Axle, Pup Pull Plate, Sand Spreader

TO: The board of County Commissioners
520 3rd St. Suite 210
Brookings, South Dakota, 57006

The undersigned vendor being familiar with the Brookings County Instruction to Bidders and Bid Specifications, and all of the details and conditions therein, hereby propose to furnish the following equipment as advertised in the Notice to Bidders

Dump Body, Hoist, Hydraulics,

Truck Portion Plow Hitch & Installation

\$ _____

Option #1 Directional Snow Plow – Installed

\$ _____

Option #2 Mid-mount 10' Wing

\$ _____

Option #3 Assist Axel

\$ _____

Option #4 Pup Pull Plate

\$ _____

Option #5 Sand Spreader

\$ _____

DELIVERY DATE: ____/____/____

The undersigned submits herewith this bid quote and in submitting this bid, it is understood that Brookings County Commission may reject any or all bids and reserves the right to waive any irregularities deemed advantageous to Brookings County. It is further understood that this bid may not be withdrawn for a period of thirty days.

Dated this _____ day of _____, 2014

(Name of Company)

(Officer of the Company Signature)

Official Address: _____

Specifications for Brookings County: Dump Body, Hoist, Hydraulics, Truck Plow Hitch

With Options: Directional Plow, Mid mount 10' Wing, Assist Axle, Pup Pull Plate, Sand Spreader

Dump Body:

1. Dump body and hoist shall be made by same manufacturer to insure proper fit
2. Dump body and hoist shall be made in United States
3. Dump body should be 16' (192") to fit a 148" CT chassis and allow for approximately 14" overhang with center of hinge located even with the back of rear tandem axle tire
4. Body width shall be minimum 84" inside and maximum 96" outside
5. Front of body shall be a straight vertical style with a front height of minimum 60" with a minimum of (1) one front inside brace
6. Cab shield shall have a minimum of ½ coverage in 10 gauge steel
7. Sides of body shall be a ¾ double wall style with side height a minimum of 36" with a horizontal side brace or weld on brace.
8. The rear of body shall be of a sloped style with a minimum of 44"
9. The tailgate shall be a fully boxed perimeter with two (2) horizontal braces creating a 3 panel design
10. Tailgate upper hinge shall be a minimum 1.5" thick with a double link hinge system
11. Body front, sides, and rear shall be constructed of a minimum of 7 Gauge grade 50 steel.
12. Body floor shall be constructed of a minimum of 3/16 AR400 steel (145,000 psi yield and 180,000 psi tensile)
13. Body outside bracing material shall be minimum 10 gauge 50,000 psi yield and 65,000 psi tensile
14. Long members of the body shall be a Western Tubular design (no cross members) with long members constructed of 1/4" inner and 7 gauge outer material or 8" "I" beam.
15. Rear pillar and rear apron shall be constructed of 7 gauge stainless steel
16. Tailgate shall be double acting and have banjo chain slot brackets for adjusting tailgate chain length
17. Tailgate shall have an electric over air tailgate release
18. The body shall have a Cougar Dump body vibrator.
19. Rear corner post shall have two (2) rear facing oval light cutouts
20. Body to be supplied with LED stop/turn/tail lights and marker lights
21. Body is to be primed at the factory
22. Body painted to match cab of truck with rino-liner material on the in-sides and tailgate from the base to the top.
23. Body to have one (1) pair of detachable rear mudflaps – installed
24. Body shall have board pockets at front and rear in order to add side boards
25. Heated box option to be run off of trucks factory installed exhaust with all components necessary

Dump Body Hoist:

1. Hoist shall be sized to properly fit 16' dump body and provide a minimum of 50 degree dump angle
2. Hoist shall have a NTEA class 110 minimum rating
3. Hoist shall be single acting
4. Hoist shall be trunnion mounted
5. Hoist cylinder shall have 3 stages (6", 5", 4") and a minimum stroke of 150"
6. Hoist lifting capacity shall be minimum of 35.4 tons
7. Rear hinge shall have composite bushings with removable pins
8. Dump body and hoist to have a 1 year warranty minimum

Hydraulics:

1. Hydraulic pump shall be U.S. Manufactured axial piston pressure and flow compensated load-sensing type
 2. Pump shall be cast iron construction and rated at 6.00 cubic inches and deliver 24.7 gpm @ 1000 engine rpm
 3. Pump shall have 2" suction line and ¾ " case drain line plumbed back to reservoir
 4. Pump shall be rated for 3,000 psi maximum and 2,500 psi continuous
 5. Pump shall have a 1-1/4" Keyed drive shaft and SAE type C mounting flange
 6. Pump shall be Force America FASD45 or approved equal
 7. 1" high-pressure steel ball valve at outlet of pump
 8. Pump shall be front mount pump mounted in the extended frame rails of truck
 9. Pump mounted so as not to create more than a three degree angle on the driveline
 10. Pump shall be driven directly off the engine crankshaft via splined driveline which includes grease fittings on both u-joint (Driveline shall be Spicer model 1310 series or equal)
 11. Hydraulic reservoir shall be minimum 40 gallon capacity, constructed of 10 gauge pickled steel and powder coated black
 12. Reservoir shall be cradle mounted and sit above the frame rails of truck and between the cab and dump body
 13. Reservoir shall be equipped with basket type filler breather cap, ¾" magnetic drain plug, 2" NPT suction with 100-mesh screen type filter with 3 psi bypass, separate return port for case drain line, 5" sight temperature gauge externally mounted, 2" full flow brass ball valve, and electric level sending unit
 14. Hydraulic oil filter shall be mounted in the reservoir with a rating of no less than 80 gpm and be equipped with a filter condition indicator gauge
 15. Filter shall also include a tank diffuser
 16. The hydraulic valve shall be of modular manifold design
 17. Each hydraulic function requires an individual manifold stacked together to form the manifold base
 18. The manifold base shall consist of an inlet section, inlet porting, outlet porting, and load sense porting
 19. There shall be a main system relief in the inlet section to protect the system from high pressure
 20. The dump body manifold shall be stacked next to the inlet section and capable of 40 gpm
 21. The hydraulic control valves shall be pulse-width modulated, proportionally controlled
 22. Each hydraulic valve segment shall be individually mounted to the manifold base and be serviceable without removing hydraulic hoses or other valve segments
 23. Each hydraulic valve segment shall have individual pressure compensation
 24. All segments shall have heavy-duty continuous duty coils and connections shall be with Din connectors
 25. All coils shall operate at 12 VDC and require a maximum of 1400 mille-amps
 26. Each segment shall be equipped with a manual override except for auger and spinner sections
 27. Dump body segment shall be rated at 40 gpm with all other segments rated to 20 gpm
 28. Valve segment shall be Force Add-A-Fold model or prior approved equal
- Pup shall be operated from hoist control
 - Plow lift – single acting lift cylinder
 - Wing Toe – double acting with 500 psi relief valve
 - Wing Heel – double acting with 1500 psi A port 500 psi B port relief
 - Conveyor
 - Spinner

29. Valve assembly shall be mounted in weather-tight enclosure with valve mounted with all ports coming out bottom
30. The wing heel cylinder shall be equipped with an anti-drift wing lock to prevent the wing from settling
31. All hydraulic lines and plumbing shall be of sufficient capacity so not to create heat or turbulence within the hydraulic system.
32. Hydraulic lines shall be routed to minimize interference with equipment and chassis components requiring service
33. Support brackets grommets and tie wraps shall be provided where appropriate to protect lines from damage
34. A color coded, sealed, prewired harness shall be used with the modular designed control center
35. The electronic controller shall be fully proportional multi-stick controller to operate all cylinder functions
36. Four auxiliary rocker switches with a fifth switch being a power switch for spreader control shall be located between the joy sticks and sander controls
37. Stick controls shall have LED-backlit nomenclature for all joystick functions
38. Electronic spreader control shall have an open-loop application
39. The spreader operator interface shall include a Spreader rotary switch for selecting material application rates 0-10 on-the-fly, with a built-in pushbutton for Standby operation. There shall also be a Spinner rotary switch for selecting spinner speeds 0-10 and have a built-in pushbutton for Blast operation
40. Control center shall be a Force America 2100 Patrol Commander Ultra or approved equal
41. Controls for all valve functions and electronic spreader control will be seat mounted integrated into a single, self-contained ergonomically designed control center with padded armrest
42. The controller shall be a 3-stick configuration with spreader controls located on armrest at operator's fingertips

Truck Portion Plow Hitch:

1. For added strength and reinforcement truck portion hitch shall have thrust arms and side plates
2. Lift cylinder shall be a minimum of a 3"x10" single acting cylinder
3. Truck portion hitch shall be installed to truck's front frame extension as close as possible to the truck hood and still allow proper hood function
4. Truck portion plow hitch shall be of the Falls 26B style to couple with existing plows or approved equal

Installation:

1. Installation shall meet superintendent approval
2. Hydraulic hoses shall be ran to front for plow lift (directional plow), rear for spreader, and right side for wing with Pioneer quick couplers
3. Hydraulic oil shall be filled to proper level after hydraulic system is tested
4. All wiring joints shall be protected with heat shrink

Option #1: Monroe Reversible Full Trip Plow Model MP48R12-ISCT or EQUAL

1. Moldboard height 48" width 12 feet
2. One piece 10 gauge grade 50 steel, roll formed moldboard
3. Integral shield style moldboard
4. Six 1/2"x4" one piece solid flame cut ribs that taper to 2" at top of the moldboard
5. 2"x3"x3/8" top moldboard angel
6. 4"x4"x3/4" bottom moldboard angle
7. 3"x3"x1/4" non-spring horizontal bracing

8. 3"x3"x1/2" horizontal spring support angle bracing
9. Heavy duty dual compression trip spring assembly
10. Monroe built in level lift assembly
11. Main push tube is 4"x4"x3/8" A36 steel seamless wall tubing
12. Fabricated from A36 steel 3 1/2" X 3 1/2" X 1/2" semi-circle
13. Moldboard and frame 100% continuously welded
14. Moldboard shotblasted and painted powder coat orange with pushframe black
15. Two 4"x10" power reverse cylinders with cushion valve protection
16. 5/8" X 8" cutting edge
17. Plow to truck hitch shall matchup to a Falls 26B truck hitch
18. Plow moldboard shall have a rubber snow deflector installed
19. Plow shall be installed

Option #2: Mid mount 10' Monroe wing with paraglide:

1. The wing shall be designed to mount behind passenger side door with front post mounted ahead of pusher and rear post mounted between tandems
2. Height of the moldboard shall be 32" including 8" cutting edge
3. The length of the wing shall be 10'
4. The cutting edge shall be 5/8"x8" top punch with AASHO spacing
5. The moldboard shall be a roll formed boxed panel design using 10 gauge Domex steel with 100,000 psi tensile
6. The moldboard shall have a 4" return flange on top of the moldboard for extra strength
7. The moldboard shall be reinforced by a double box section of 10 gauge grade 50 extending from the wing base to the mid height point on the back of the wing moldboard
8. The inner box section shall be installed and 100% welded prior to installing the outer box section which also shall be 100% welded
9. There shall be a minimum 4 vertical ribs on the back of the wing moldboard
10. There shall be 2 horizontal support attaching brackets welded 100% to the back of the wing to provide a connection point for the wing pusharms
11. The toe of the moldboard shall be mounted to the front slide plate via a single 1-1/4" diameter grade #5 bolt with a top lock nut
12. The cross tube shall be mounted under the truck by passing through two 1/2" steel mounting plates with each plate having a single flame cut hole for the cross tube to fit through
13. The front slide assembly will be paraglide
14. The paraglide assembly will allow mounting of the moldboard.
15. Lifting action for the heel of the wing will be accomplished with a single, double acting 3"x10" hydraulic cylinder which is attached to the wing moldboard's mechanical float linkage
16. The wing shall be operated by hydraulic lift no cables or chains
17. The rear wing mount shall be designed to mount between the rear tandems with brackets designed to work with a Tuff Track suspension
18. There shall be a rear wing heavy duty adjustable spring cushioned lift arm including a safety shear pin
19. The moldboard shall be powder coat orange with hardware powder coat black
20. Wing shall be completely installed

Option #3: Assist Axle:

1. The assist axle shall be located in the pusher position
2. Suspension and axle shall be rated at 13,000 pounds
3. Axle shall be steerable type that will work with wing attached
4. Suspension shall be air ride and air lift
5. Application shall be for single wheel
6. Brookings County to provide wheels and tires as recommended by the manufacturer
7. Axle shall automatically lift when truck is put into reverse

8. Installer to provide documentation as to air supply required and supply the additional air volume as needed
9. Assist axle shall have in cab controls and exterior regulator
10. Installer to provide complete installation of unit

Option #4: Pup Pull Plate:

1. Rear of chassis shall be designed to have a hitch to pull a pup trailer and work with a chip seal machine
2. Hitch shall be a two plate system with the chipper bar being permanent and the 5" ball hitch plate being removable
3. Both plates shall be 3/4" steel plate
4. Chipper bar shall have 2" shaft for chipper to attach to
5. 5" Ball hitch
6. Hitch shall have safety hook
7. All electric, hydraulic, and air shall be incorporated into the hitch and clear the dump box through all ranges of motion
8. Brookings County to give final approval of design and layout
9. Hitch to be painted to match the frame

Option #5: Sand Spreader:

1. Hopper Length 15' width 84" height 56" capacity 9.9 water level
2. 10 Gauge 201 stainless steel hopper with 7 gauge longsills, 3/16" replaceable floor
3. 45 degree side panels, approximately 24 degree end panels
4. 4 lift loops installed
5. Bolt on replaceable chain shields
6. Self-locking screw jack on rear discharge gate
7. 50:1 gear box
8. 1 1/2 shafts with 8 tooth cast iron sprockets (spring loaded idler shaft)
9. 4 bolt flange type relubable bearings
10. Standard 1/4" bar chain with bars at 4.5" center
11. Front and rear wipers
12. Top beam installed (fabricated in mild steel and powder coated black)
13. Stainless steel tip-up spinner assembly with poly spinner disc
14. Left hand winch (with brake) installed
15. Manual control chain oiler, installed on rear panel of spreader
16. Stainless steel inverted-V, installed
17. Grease extensions to the rear, installed
18. Tailgate latch kit and 2 chain and binder mounting kit
19. Rear slack adjusters, installed
20. Unit shipped bare 201 stainless steel

General:

1. All equipment bid shall be installed
2. All equipment bid shall be new and of current make and model
3. Any standard equipment not identified in these specification shall still be included as part of the equipment specified
4. Any items not included in these specification, but are required or needed to make the equipment operational and functional shall be implied as part of this specification

Bid:

1. Price for Dump Body, Dump Body Hoist, Hydraulics and Truck Portion Plow Hitch
2. Price For Directional Snow Plow
3. Price For Mid-mount 10' Wing with paraglide
4. Price For Assist Axle
5. Price For Pup Pull Plate
6. Price for Sand Spreader

Specifications for Brookings County: Dump Body, Dump Body Hoist, Hydraulics, Truck Portion Plow Hitch,

With Options: Directional Plow, Mid-mount 10' Wing, Assist Axle, Pup Pull Plate, Sand Spreader.

Dump Body:

- ☐ Y ☐ N Dump body and hoist shall be made by same manufacturer to insure proper fit
- ☐ Y ☐ N Dump body and hoist shall be made in the United States
- ☐ Y ☐ N Dump body should be 16' (192") to fit a 148" CT chassis and allow for approximately 14" overhang with center located even with the back of rear tandem axle tire
- ☐ Y ☐ N Body width shall be minimum 84" inside and maximum 96" outside
- ☐ Y ☐ N Front of body shall be a straight vertical style with a front height of minimum 60" with a minimum of (1) one front inside brace
- ☐ Y ☐ N Cab shield shall have a minimum of ½" coverage in 10 gauge steel
- ☐ Y ☐ N Sides of body shall be a ¾ double wall style with side height a minimum of 36" with a horizontal side brace or weld on brace.
- ☐ Y ☐ N The rear of body shall be of a sloped style with a minimum of 44"
- ☐ Y ☐ N The tailgate shall be a fully boxed perimeter with two (2) horizontal braces creating a 3 panel design
- ☐ Y ☐ N Tailgate upper hinge shall be a minimum 1.5" thick with a double link hinge system
- ☐ Y ☐ N Body front, sides, and rear shall be constructed of a minimum of 7 Gauge grade 50 steel
- ☐ Y ☐ N Body floor shall be constructed of a minimum of 3/16 AR400 steel (145,000 psi yield and 180,000 psi tensile)
- ☐ Y ☐ N Body outside bracing material shall be minimum 10 gauge 50,000 psi yield and 65,000 psi tensile
- ☐ Y ☐ N Long members of the body shall be a Western Tubular design (no cross members) with long members constructed of 1/4" inner and 7 gauge outer material or 8" "I" beam
- ☐ Y ☐ N Rear pillar and rear apron shall be constructed of 7 gauge stainless steel
- ☐ Y ☐ N Tailgate shall be double acting and have banjo chain slot brackets for adjusting tailgate chain length
- ☐ Y ☐ N Tailgate shall have an electric over air tailgate release
- ☐ Y ☐ N The body shall have a Cougar Dump body vibrator
- ☐ Y ☐ N Rear corner post shall have two (2) rear facing oval light cutouts
- ☐ Y ☐ N Body to be supplied with LED stop/turn/tail lights and marker lights
- ☐ Y ☐ N Body is to be primed at the factory
- ☐ Y ☐ N Body painted to match cab of truck with rino-liner material on the in-sides and tailgate from the base to the top
- ☐ Y ☐ N Body to have one (1) pair of detachable rear mudflaps – installed
- ☐ Y ☐ N Body shall have board pockets at front and rear in order to add side boards
- ☐ Y ☐ N Heated box option to be run off of trucks factory installed exhaust with all components necessary

Dump Body Hoist:

- ☐ Y ☐ N Hoist shall be sized to properly fit 16' dump body and provide a minimum of 50 degree dump angle
- ☐ Y ☐ N Hoist shall have a NTEA class 110 rating minimum
- ☐ Y ☐ N Hoist shall be single acting
- ☐ Y ☐ N Hoist shall be trunnion mounted
- ☐ Y ☐ N Hoist cylinder shall have 3 stages (6", 5", 4") and a minimum stroke of 150"
- ☐ Y ☐ N Hoist lifting capacity shall be minimum of 35.4 tons
- ☐ Y ☐ N Rear hinge shall have composite bushings with removable pins
- ☐ Y ☐ N Dump body and hoist to have a 1 year warranty minimum

Hydraulics:

- ☐ Y ☐ N Hydraulic pump shall be U.S. Manufactured axial piston pressure and flow compensated load-sensing type
- ☐ Y ☐ N Pump shall be cast iron construction and rated at 6.00 cubic inches and deliver 24.7 gpm @ 1000 engine rpm
- ☐ Y ☐ N Pump shall have 2" suction line and ¾ " case drain line plumbed back to reservoir
- ☐ Y ☐ N Pump shall be rated for 3,000 psi maximum and 2,500 psi continuous
- ☐ Y ☐ N Pump shall have a 1-1/4" Keyed drive shaft and SAE type C mounting flange
- ☐ Y ☐ N Pump shall be Force America FASD45 or approved equal
- ☐ Y ☐ N 1" high-pressure steel ball valve at outlet of pump
- ☐ Y ☐ N Pump shall be front mount pump mounted in the extended frame rails of truck
- ☐ Y ☐ N Pump mounted so as not to create more than a three degree angle on the driveline
- ☐ Y ☐ N Pump shall be driven directly off the engine crankshaft via splined driveline which includes grease fittings on both u-joint (Driveline shall be Spicer model 1310 series or equal)
- ☐ Y ☐ N Hydraulic reservoir shall be minimum 40 gallon capacity, constructed of 10 gauge pickled steel and powder coated black
- ☐ Y ☐ N Reservoir shall be cradle mounted and sit above the frame rails of truck and between the cab and dump body
- ☐ Y ☐ N Reservoir shall be equipped with basket type filler breather cap, ¾" magnetic drain plug, 2" NPT suction with 100-mesh screen type filter with 3 psi bypass, separate return port for case drain line, 5" sight temperature gauge externally mounted, 2" full flow brass ball valve, and electric level sending unit
- ☐ Y ☐ N Hydraulic oil filter shall be mounted in the reservoir with a rating of no less than 80 gpm and be equipped with a filter condition indicator gauge
- ☐ Y ☐ N Filter shall also include a tank diffuser
- ☐ Y ☐ N The hydraulic valve shall be of modular manifold design
- ☐ Y ☐ N Each hydraulic function requires an individual manifold stacked together to form the manifold base
- ☐ Y ☐ N The manifold base shall consist of an inlet section, inlet porting, outlet porting, and load sense porting
- ☐ Y ☐ N There shall be a main system relief in the inlet section to protect the system from high pressure
- ☐ Y ☐ N The dump body manifold shall be stacked next to the inlet section and capable of 40 gpm
- ☐ Y ☐ N The hydraulic control valves shall be pulse-width modulated, proportionally controlled
- ☐ Y ☐ N Each hydraulic valve segment shall be individually mounted to the manifold base and be serviceable without removing hydraulic hoses or other valve segments
- ☐ Y ☐ N Each hydraulic valve segment shall have individual pressure compensation
- ☐ Y ☐ N All segments shall have heavy-duty continuous duty coils and connections shall be with Din connectors
- ☐ Y ☐ N All coils shall operate at 12 VDC and require a maximum of 1400 mille-amps
- ☐ Y ☐ N Each segment shall be equipped with a manual override except for auger and spinner sections
- ☐ Y ☐ N Dump body segment shall be rated at 40 gpm with all other segments rated to 20 gpm
- ☐ Y ☐ N Valve segment shall be Force Add-A-Fold model or prior approved equal
- Pup shall be operated from hoist control
 - Plow lift – single acting lift cylinder
 - Wing Toe – double acting with 500 psi relief valve
 - Wing Heel – double acting with 1500 psi A port 500 psi B port relief
 - Conveyor
 - Spinner
- ☐ Y ☐ N Valve assembly shall be mounted in weather-tight enclosure with valve mounted with all ports coming out bottom
- ☐ Y ☐ N The wing heel cylinder shall be equipped with an anti-drift wing lock to prevent the wing from settling

- ☐ Y ☐ N All hydraulic lines and plumbing shall be of sufficient capacity so not to create heat or turbulence within the hydraulic system.
- ☐ Y ☐ N Hydraulic lines shall be routed to minimize interference with equipment and chassis components requiring service
- ☐ Y ☐ N Support brackets grommets and tie wraps shall be provided where appropriate to protect lines from damage
- ☐ Y ☐ N A color coded, sealed, prewired harness shall be used with the modular designed control center
- ☐ Y ☐ N The electronic controller shall be fully proportional multi-stick controller to operate all cylinder functions
- ☐ Y ☐ N Four auxiliary rocker switches with a fifth switch being a power switch for spreader control shall be located between the joy sticks and sander controls
- ☐ Y ☐ N Stick controls shall have LED-backlit nomenclature for all joystick functions
- ☐ Y ☐ N Electronic spreader control shall have an open-loop application
- ☐ Y ☐ N The spreader operator interface shall include a Spreader rotary switch for selecting material application rates 0-10 on-the-fly, with a built-in pushbutton for Standby operation. There shall also be a Spinner rotary switch for selecting spinner speeds 0-10 and have a built-in pushbutton for Blast operation
- ☐ Y ☐ N Control center shall be a Force America 2100 Patrol Commander Ultra or approved equal
- ☐ Y ☐ N Controls for all valve functions and electronic spreader control will be seat mounted and integrated into a single, self-contained ergonomically designed control center with padded armrest
- ☐ Y ☐ N The controller shall be a 3-stick configuration with spreader controls located on armrest at operator's fingertips

Truck Portion Plow Hitch:

- ☐ Y ☐ N For added strength and reinforcement truck portion hitch shall have thrust arms and side plates
- ☐ Y ☐ N Lift cylinder shall be a minimum of a 3"x10" single acting cylinder
- ☐ Y ☐ N Truck portion hitch shall be installed to truck's front frame extension as close as possible to the truck hood and still allow proper hood function
- ☐ Y ☐ N Truck portion plow hitch shall be of the Falls 26B style to couple with existing plows or approved equal

Installation:

- ☐ Y ☐ N Installation shall meet superintendent approval
- ☐ Y ☐ N Hydraulic hoses shall be ran to front for plow lift (directional plow), rear for spreader, and right side for wing with Pioneer quick couplers
- ☐ Y ☐ N Hydraulic oil shall be filled to proper level after hydraulic system is tested
- ☐ Y ☐ N All wiring joints shall be protected with heat shrink

Option #1: Monroe Reversible Full Trip Plow Model MP48R12-ISCT or EQUAL Plow:

- ☐ Y ☐ N Moldboard shall be 12' in length
- ☐ Y ☐ N One piece 10 gauge grade 50 steel, roll formed moldboard
- ☐ Y ☐ N Integral shield style moldboard
- ☐ Y ☐ N Six ½"x4" one piece solid flame cut ribs that taper to 2" at top of the moldboard
- ☐ Y ☐ N 2"x3"x3/8" top moldboard angel
- ☐ Y ☐ N 4"x4"x3/4" bottom moldboard angle
- ☐ Y ☐ N 3"x3"x1/4" non-spring horizontal bracing
- ☐ Y ☐ N 3"x3"x1/2" horizontal spring support angle bracing
- ☐ Y ☐ N Heavy duty dual compression trip spring assembly
- ☐ Y ☐ N Monroe built in level lift assembly
- ☐ Y ☐ N Main push tube is 4"x4"x3/8" A36 steel seamless wall tubing
- ☐ Y ☐ N Fabricated from A36 steel 3 1/2"x 3 1/2"x 1/2" semi-circle
- ☐ Y ☐ N Moldboard and frame 100% continuously welded
- ☐ Y ☐ N Moldboard shotblasted and painted powder coat orange with pushframe black

- ☐ Y ☐ N Two 4"x10" power reverse cylinders with cushion valve protection
- ☐ Y ☐ N 5/8"x8" cutting edge
- ☐ Y ☐ N Plow to truck hitch shall matchup to a Falls 26B truck hitch
- ☐ Y ☐ N Plow moldboard shall have a rubber snow deflector installed
- ☐ Y ☐ N Plow shall be installed

Option #2: Mid mount 10' Monroe Wing with paraglide:

- ☐ Y ☐ N The wing shall be designed to mount behind Passenger side door with front post mounted ahead of pusher and rear post mounted between tandems
- ☐ Y ☐ N Height of the moldboard shall be 32" including 8" cutting edge
- ☐ Y ☐ N The length of the wing shall be 10'
- ☐ Y ☐ N The cutting edge shall be 5/8"x8" top punch with AASHO spacing
- ☐ Y ☐ N The moldboard shall be a roll formed boxed panel design using 10 gauge Domex steel with 100,000 psi tensile
- ☐ Y ☐ N The moldboard shall have a 4" return flange on top of the moldboard for extra strength
- ☐ Y ☐ N The moldboard shall be reinforced by a double box section of 10 gauge grade 50 extending from the wing base to the mid height point on the back of the wing moldboard
- ☐ Y ☐ N The inner box section shall be installed and 100% welded prior to installing the outer box section which also shall be 100% welded
- ☐ Y ☐ N There shall be a minimum of 4 vertical ribs on the back of the wing moldboard
- ☐ Y ☐ N There shall be 2 horizontal support attaching brackets welded 100% to the back of the wing to provide a connection point for the wing pusharms
- ☐ Y ☐ N The toe of the moldboard shall be mounted to the front slide plate via a single 1-1/4" diameter grade #5 bolt with a top lock nut
- ☐ Y ☐ N The cross tube shall be mounted under the truck by passing through two 1/2" steel mounting plates with each plate having a single flame cut hole for the cross tube to fit through
- ☐ Y ☐ N The front slide assembly will be paraglide
- ☐ Y ☐ N The paraglide assembly will allow mounting of the moldboard
- ☐ Y ☐ N Lifting action for the heel of the wing will be accomplished with a single, double acting 3"x10" hydraulic cylinder which is attached to the wing moldboard's mechanical float linkage
- ☐ Y ☐ N The wing shall be operated by hydraulic lift no cables or chains
- ☐ Y ☐ N The rear wing mount shall be designed to mount between the rear tandems with brackets designed to work with a Tuff Track suspension
- ☐ Y ☐ N There shall be a rear wing heavy duty adjustable spring cushioned lift arm including a safety shear pin
- ☐ Y ☐ N The moldboard shall be powder coat orange with hardware powder coat black
- ☐ Y ☐ N Wing shall be completely installed

Option #3: Assist Axle:

- ☐ Y ☐ N The assist axle shall be located in the pusher position
- ☐ Y ☐ N Suspension and axle shall be rated at 13,000 pounds
- ☐ Y ☐ N Axle shall be steerable type that will work with wing attached
- ☐ Y ☐ N Suspension shall be air ride and air lift
- ☐ Y ☐ N Application shall be for single wheel
- ☐ Y ☐ N Brookings County to provide wheels and tires as recommended by manufacture
- ☐ Y ☐ N Axle shall automatically lift when truck is put into reverse
- ☐ Y ☐ N Installer to provide documentation as to air supply required and supply the additional air volume as needed
- ☐ Y ☐ N Assist axle shall have in cab controls and exterior regulator
- ☐ Y ☐ N Installer to provide complete installation of unit

Option #4: Pup Pull Plate:

- ☐ Y ☐ N Rear of chassis shall be designed to have a hitch to pull a pup trailer and work with a chip seal machine
- ☐ Y ☐ N Hitch shall be a two plate system with the chipper bar being permanent and the 5" ball hitch plate being removable
- ☐ Y ☐ N Both plates shall be ¾" steel plate
- ☐ Y ☐ N Chipper bar shall have 2" shaft for chipper to attach to
- ☐ Y ☐ N 5" Ball hitch
- ☐ Y ☐ N Hitch shall have safety hook
- ☐ Y ☐ N All electric, hydraulic, and air shall be incorporated into the hitch and clear dump box through all ranges of motion
- ☐ Y ☐ N Brookings County to give final approval of design and layout
- ☐ Y ☐ N Hitch to be painted to match frame

Option #5: Sand Spreader:

- ☐ Y ☐ N Hopper length 15' width 84" height 56" capacity 9.9 water level
- ☐ Y ☐ N 10 Gauge 201 stainless steel hopper with 7 gauge longsills, 3/16" replaceable floor
- ☐ Y ☐ N 45 degree side panels, approximately 24 degree end panels
- ☐ Y ☐ N 4 lift loops installed
- ☐ Y ☐ N Bolt on replaceable chain shields
- ☐ Y ☐ N Self-locking screw jack on rear discharge gate
- ☐ Y ☐ N 50:1 gear box
- ☐ Y ☐ N 1 ½ shafts with 8 tooth cast iron sprockets (spring loaded idler shaft)
- ☐ Y ☐ N 4 bolt flange type relubable bearings
- ☐ Y ☐ N Standard ¼" bar chain with bars at 4.5" center
- ☐ Y ☐ N Front and rear wipers
- ☐ Y ☐ N Top beam installed (fabricated in mild steel and powder coated black)
- ☐ Y ☐ N Stainless steel tip-up spinner assembly with poly spinner disc
- ☐ Y ☐ N Left hand winch (with brake) installed
- ☐ Y ☐ N Manual control chain oiler, installed on rear panel of spreader
- ☐ Y ☐ N Stainless steel inverted-V, installed
- ☐ Y ☐ N Grease extensions to the rear, installed
- ☐ Y ☐ N Tailgate latch kit and 2 chain and binder mounting kit
- ☐ Y ☐ N Rear slack adjusters, installed
- ☐ Y ☐ N Unit shipped bare 201 stainless steel

General:

- ☐ Y ☐ N All equipment bid shall be installed
- ☐ Y ☐ N All equipment bid shall be new and of current make and model
- ☐ Y ☐ N Any standard equipment not identified in these specification shall still be included as part of the equipment specified
- ☐ Y ☐ N Any items not included in these specification, but are required or needed to make the equipment operational and functional shall be implied as part of this specification